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H4L LDPC L205 L209

(56) Documents Cited

WO 2002/035808 A2 WO 2002/025918 A1

DE 010142270 A1 US 6205330 A

US 2002/0083035 A1

Groupwise 5.5, Novell Systems, Help pages - "About
fax/print gateway addressing"

(58) Field of Search

UK CL (Edition V) H4L

INT CL⁷ G06F, H04Q

Other: ONLINE: WPI, EPODOC, JAPIO, INSPEC

(54) Abstract Title

Sending email to mobile phone as text message

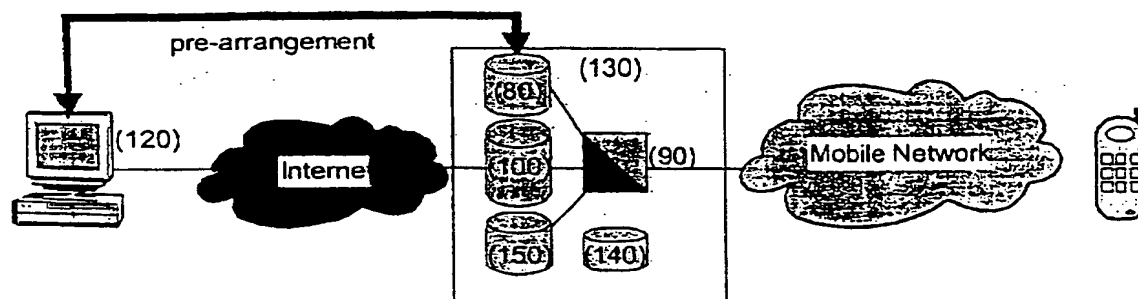
(57) A method of sending an SMS text message to a recipient's mobile telephone (40) using e-mail software comprises sending an e-mail message to a text server (80) together with the recipient's mobile phone number. The text server (80), (100), (150) converts the e-mail message into SMS text messages and forwards (90) them to the recipient's mobile telephone number(40).

The sender may include security measures such as password protection or digital signatures and the server may authenticate the message by determining that it originates from the registered address.

The sender may first pre-register with a credit/debit account and to enter the return email address. The email to SMS text conversion server may have a voice recognition input and may be a web server or an electronic mail server.

Figure 1

d) The invention:

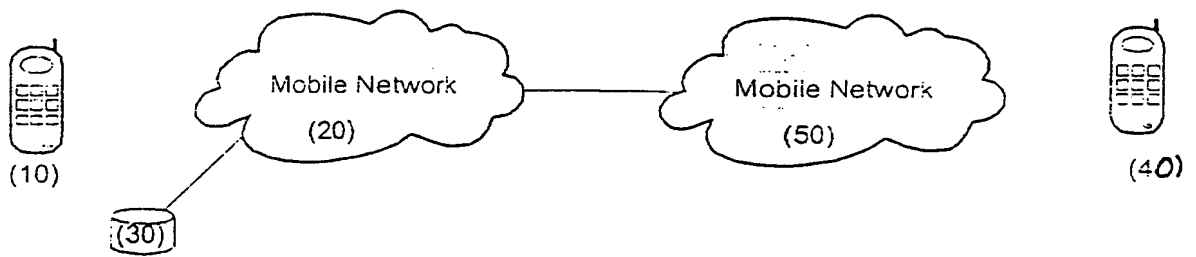


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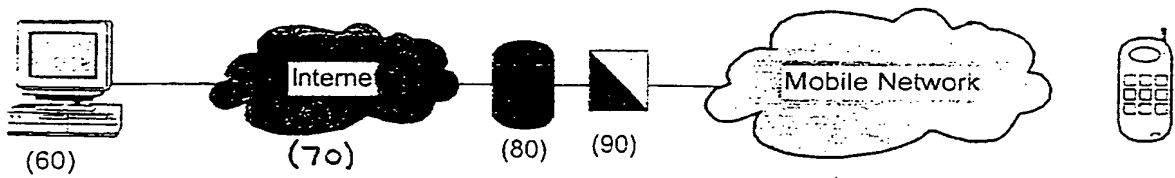
BEST AVAILABLE COPY

Figure 1

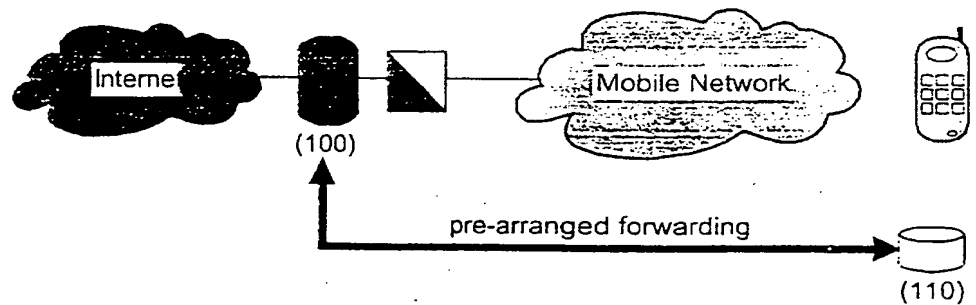
a) Sending a text message from one mobile phone to another



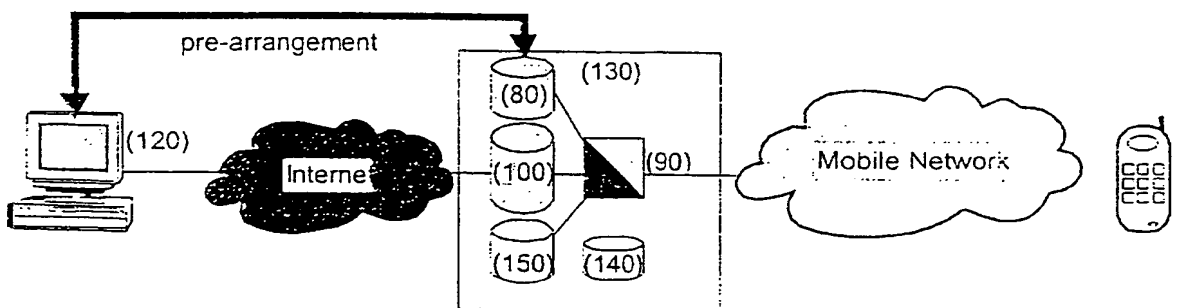
b) Sending a text message from a web page to a mobile phone



c) email notification / forwarding to a mobile phone.



d) The invention:



Method of sending mobile phone text messages

1

Background

Many modern digital mobile phone systems, e.g. GSM, cdmaOne, etc., enable users to send and receive short text messages of approx 160 characters. These messages are formally known in the Global System Mobile communications technical specifications as SMSes (Short Message Service) and are more commonly known as "Text Messages".

Text messaging has become very popular in recent years because it is: instant, reliable, discreet, and cost and time efficient. The main difficulty with text messaging is the difficulty of entering the message. The purpose of the Invention is to provide an easier method of entering and sending text messages.

The typically way to send a text message is as follows: The Sender, selects the "Write a message" option on their mobile phone, types in the message using the numeric/(quasi alphabetic) dialling keys. This process is quite difficult because the keypad is usually physically small and each individual numeral key is used to represent several alphabetic characters so that a key must be pressed several times to select the correct character. Having entered the text of the message, the user then enters the mobile number of the recipient and sends the message. The originator of the SMS text message pays for sending it and this is charged to their mobile phone account.

Because of the awkwardness of inputting text messages several alternative methods have already been developed.

One known method employs a dictionary database built into the mobile phone. This dictionary means that to type a word into the phone, the user presses each (multiple alphabetic character) key only once and, based on the combination of keys pressed, the dictionary figures out what the word should be.

Another known method of inputting text messages is to input them into a web site. The web site is interfaced to a SMS gateway which converts the message to SMS format and transmits this to the mobile network. This is in many ways convenient but it has drawbacks: it is

often awkward to activate a web browser, navigate to the correct page, often having to type in a username or other reference number, click to accept various terms and conditions etc before inputting and sending the message. Also Internet based services are often subsidised by advertising messages inserted into the text message.

As well as person-to-person usage, SMS Text messages are also used for other applications. They are for example used for voice-mail and e-mail notification, when a voice-mail/e-mail arrives in a mail box, the e-mail system sends an SMS to the user to alert them. This facility is often provided by Mobile Operators or by Internet Service Providers (ISPs) owned by or affiliated to Mobile Operators. ISPs provide their customers with [dial-up] access to the internet so that they can enjoy web-browsing, e-mail and chat facilities. ISPs typically provide their customers with an e-mail address in the form of username@ISP.com e.g. Johndoe@MobileOperator.com. Some ISPs associated with mobile operators, provide e-mail addresses in the form mobilenumber@mobileOperator.com. Some ISPs, especially those associated with mobile phone companies offer email notification and e-mail forwarding to SMS text messages i.e. where the entire contents of the e-mail are converted into a series of SMS text messages and sent to the recipient.

SMS Text message are also used for mass broadcast of commercial messages / advertisements.

2 The Invention

2.1 Overview

The invention provides a method of sending an SMS text message to a recipient's mobile telephone using e-mail software comprising the steps of:

sending an e-mail message to a text server together with the recipient's mobile telephone number,

causing the text server to convert the e-mail message into SMS text messages, and

causing the text server to send the SMS text messages to the

recipient's mobile telephone number.

The invention provides a simple and easy way for users to send text messages from a standard PC using standard e-mail software.

To send a SMS text message, the Sender first pre-registers:

- opens a credit/ debit account, deposits some funds and
- gives details of their mobile number and e-mail address.

Then to actually send a message the Sender:

- activates their e-mail software,
- enters the recipients address into the e-mail software, in the form nnn nnn nnn@TextCo.com (nnn nnn nnn is the Recipient's mobile phone number, TextCo.com is the domain name of the e-mail to SMS text conversion server.
- enters the subject and message details, signs and sends the message.
- The message is sent by the normal e-mail mechanisms to the Text Server which converts it into SMS text messages and inserts the Senders mobile number.
- sends the message to the mobile number given in the "e-mail" address.
- In order to receive such messages the recipient does not have to make any prearrangement, such as registering this e-mail address with the Text Service Provider. This is different from the case where Recipients register with an ISP and have an arrangement to have their emails or headers forwarded to SMS text.
- The cost of sending the SMS text message is deducted from the originators account

This method makes it very easy for users who have access to a PC/email to send Text messages without the difficulty of entering them via the mobile phone keypad.

The Invention also provides the following alternative methods of inputting the text messages:

- A PC application running on the Users PC
- A web page and
- A voice recognition unit.

2.2 Details

The invention will now be further described with the aid of the following diagrams.

Referring to Figure 1:

(10) is a Sender's mobile phone.

(20) is the mobile network that the Sender (10) has a Service subscription with.

(30) is the Sender's (10) mobile phone account held on a billing server.

(40) is a Recipient mobile phone.

(50) is the mobile network that the Recipient (40) has a Service subscription with.

(60) is an Internet Access terminal e.g. a PC running an Internet Browser software application

(70) is the Internet or other public data communication network.

(80) is a Web site/application capable of sending SMS text messages.

(90) is a gateway that converts between IP/e-mail formats and SMS text format for transmission on the mobile network.

(100) is an e-mail server, which stores e-mails received for users until the users collect them.

(110) is the mobile phone billing account of a mobile phone user (40) who has chosen and pre-arranged to receive SMS text notification of any e-mails received by the e-mail server (90).

(120) is e-mail client software (e.g. Outlook, Eudora, Lotus notes etc.)

(130) is the invention and comprises

(100) and e-mail server,

(80) a web server

(150) a Voice Recognition Server

(90) an SMS gateway and,

(140) an user account.

In order to introduce and differentiate the invention, some of the known methods of sending SMS text messages will first be described in terms of this diagram. Refer to Figure 1a, 1b, 1c, 1d.

Fig 1a) Conventional Text message: To send a conventional SMS text message, the Sender (10) types the message into their mobile (10) and sends it. The cost of the SMS is charged to the Sender's mobile phone account (30). The SMS text message is sent from the originating mobile network (20) to the Recipient user (40) via the Recipient's mobile network (50).

Fig 1b) Sending from a web page: The Sender (60) activates a web browser on a suitable Internet Access terminal (e.g. PC) and navigates to a web site which provides a web page/form which allows the user to enter the text of a short message. The Web site interfaces to a gateway (90) which converts between plain text and SMS transmission format and submits the message for transmission on the mobile network (50). These web-sites often offer "free" SMS text messages and oblige the Sender to view advertising on the site and/or append commercial advertising messages to the SMS when it is sent.

Fig 1c) e-mail notification: The Recipient (40) pre-establishes an e-mail account on the e-mail server (100) and pre-arranges for a notification SMS to be sent, or for the entire text of the e-mail to be converted to SMS text and sent.

d) The invention:

To send SMS text messages the Sender (10) first prearranges with one of the servers (80), (100), (150) and supplies information such as their e-mail address and their mobile 'phone number. The purpose of pre-registering is so that the Sender may be billed (via their account (140)) for the sending of SMS text messages. This pre-arrangement may be

implicit e.g. if free trial SMSs are offered before the Sender starts to pay. The Sender must supply at least their e-mail address since this will be used by the server (80), (100), (150) to identify who originated this message and therefore who will be billed for it. The Sender may also register their mobile number since this will enable the Invention to look-up the mobile number corresponding to an incoming e-mail and to indicate this to the recipient of the SMS text message. The user may also register a password for using this service.

One potential problem with this approach is that fraudsters may send e-mails which fraudulently claim to come from registered users i.e. they "spoof" the Sender's e-mail address. There are various social disincentives to doing this, notably that the Recipient of the message will not know from whom the message came. The authorities would also know to whom the SMS text message had been sent and could use this as the basis of tracking down the fraudster. Alternatively the Bogus sender could include an identification of themselves within the text of the message. However this would then expose the criminal to being identified and tracked down. Therefore it is more likely that anyone attempting to send fraudulent messages will do so to cause trouble rather than for personal gain.

The Invention provides a number of methods to prevent fraud:

- Password
- Source IP address
- Secure e-mail

Password: In this method, the Sender signs the e-mail by typing their password e.g. as the final word of the text of the message. The server (80), (100), (150) confirms that this password is correct before stripping it off and sending the message to the Recipient. If the Sender forgets to sign their e-mail with their password, the Invention sends them a reminder of their password via SMS.

Source IP: In this method it is checked that the e-mail was sent from the same fixed IP address that the User registered from.

Secure e-mail: In this method the Sender signs the e-mail with a conventional digital certificate.

The Sender (10) may specify an option on the server (80), (100), (150) that only incoming e-mails which have the correct security options will be sent and will be billed to his account.

Having pre-registered, a user may then Send SMS text messages from their e-mail software (120).

To send an SMS text message, the Sender (120) enters the quasi e-mail address of the Recipient in the form:

nnnnnnnnnnnnnnnn@domain.com

where:

- nnnnnnnnnnnnnnnn is the mobile telephone number of the Recipient
- domain.com is the address of the e-mail server and SMS gateway.

The sender may address the mobile telephone number either in full international format (+, country code followed by national number) or according to the national dialling plan. This allows the user to send SMS text messages to international recipients. If no international code is included the Recipient is presumed to belong to the same country as the sender (as indicated by their mobile number).

The user then completes the text of the message in the Subject field and in the body of the message. If the user enters more text than can be transmitted in a single SMS text message, the server, can if the Sender selects this option, split the text into multiple messages.

If the user has selected that security option, the user may then sign the message with their password. Alternatively the Sender may sign the message with a conventional digital certificate.

The user then sends the e-mail message and this is sent using normal e-mail transfer mechanisms (SMTP) to the e-mail server (100) part of the invention (130).

The Invention (130) then verifies:

- that the message has been sent from a registered user,

- that the user is authentic, and
- that they have sufficient funds in their account (140).

The Invention (130) checks that the message is from a registered user by comparing the e-mail address of the message originator with its database of registered users.

The Invention checks that the user is authentic by checking either their password, source IP address or their digital certificate.

The Invention checks that the Sender (10) has sufficient funds in their account (140). The Invention (130) can offer both pre-paid and credit accounts. The account (140) may also be linked to the Sender's (120) mobile phone account.

The Sender may credit funds into their account in a variety of ways including:

- Credit card
- Debit card
- Cheque
- Bank Transfer and
- Premium Rate number.

In a variation of the Invention, the SMS messages are sent from a dedicated application software program running on the Senders PC, rather than the general purpose e-mail software. In this case the information is transferred from the User's PC using HTML mechanisms (Port 80) rather than SMTP (Port 25) mechanisms. The advantage of this approach is that the message is sent instantly and is not delayed by being stored in the Users outgoing e-mail server.

In a further variation of the Invention, the messages are inputted from a Web page hosted by a web server. The Sender browses to this web page, enters the text of the message and the Recipients mobile number. The SMS is billed to the Senders account.

In a further variation of the invention, the SMS messages are sent from a HTML linked field in a third party web site. This third party

web site provides a link to the web site described in the previous paragraph.

Another option is to send messages from a voice recognition system. In this method, the Sender rings up a Voice Recognition Server (150). This may be any type of server having a voice recognition input. The voice recognition server (150) converts the Senders words to text. Given that voice recognition is not very reliable, especially in the environments in which mobile phones are used, the Invention allows the Sender to spell out the message using the International Radio alphabet Alpha , Bravo, Charlie etc or other equivalent alphabet (Apple, Ball, etc).

As well as sending plain text messages there are several advanced messaging options. Users may select these options by including a key word in the subject field of the message. E.g. Senders may specify if messages should be high priority and displayed immediately on the Recipient's mobile phone screen rather than being stored in the mobile phone's inbox by including the keyword "FLASH" in the subject field. The users may also attach images that they wish to send in SMS picture messages or attach music files that they wish to send as mobile phone ring tones.

3 CLAIMS

1. A method of sending an SMS text message to a recipient's mobile telephone using e-mail software comprising the steps of:

sending an e-mail message to a text server together with the recipient's mobile telephone number,

causing the text server to convert the e-mail message into SMS text messages, and

causing the text server to send the SMS text messages to the recipient's mobile telephone number.

2. A method as claimed in Claim 1 in which the sender first pre-registers with the server to open a credit/debit account and to enter the sender's e-mail address.

3. A method as claimed in Claim 1 or Claim 2 in which the recipient's mobile phone number is entered in the format nnn...n@TextCo.com, where nnn...n is the recipients mobile telephone number and TextCo.com is the domain name of the e-mail to SMS text conversion server.

4. A method as claimed in any preceding claim in which the sender includes a password in the e-mail message, the server checks the authenticity of the password and strips the password from the message before forwarding it.

5. A method as claimed in any preceding claim in which the sender signs the e-mail with a digital signature.

6. A method as claimed in any preceding claim in which the server checks that the e-mail was received from the registered IP address.

7. A method as claimed in any preceding claim in which the e-mail to SMS text conversion server has a voice recognition input.

8. A method as claimed in any preceding claim in which the e-mail to SMS text conversion server is a web server.

9. A method as claimed in any preceding claim in which the e-mail to SMS text conversion server is an e-mail server.

10 A method as claimed in any preceding claim in which the message is forwarded from a third party or associated server to the e-mail to SMS text conversion server.

11. A method of sending an SMS text message to a recipient's mobile telephone using e-mail software substantially as described herein with reference to the accompanying drawings.



INVESTOR IN PEOPLE

Application No: GB 0119405.9
Claims searched: 1-11

Examiner: Robert Shorthouse
Date of search: 4 February 2003

Patents Act 1977 : Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance	
X: Y	1, 2, 8 10:3, 9 at least	US 6205330	(WINBLADH) See column 1 line 63- column 3 line 12
A, E	-	WO 02/25918 A1	(KHALILIOULINE) See abstract
A, E	-	DE 10142270 A1	(SIEMENS) See abstract
A, E	-	US 2002/0083035 A1	(PEARL ET AL) See paragraphs 6-10 and 14
A, E	-	WO 02/35808 A2	(THEOBALD) See abstract
Y	3, 9	Groupwise 5.5, Novell Systems, Help pages - "About fax/print gateway addressing"	

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^v:

H4L

Worldwide search of patent documents classified in the following areas of the IPC¹:

H04Q, G06F

The following online and other databases have been used in the preparation of this search report:

WPI, EPODOC, JAPIO, INSPEC